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United States Department of Agriculture  
Natural Resources Conservation Service  
Plant Materials Center  
Bismarck, North Dakota

# **'Lodorm' green needlegrass**



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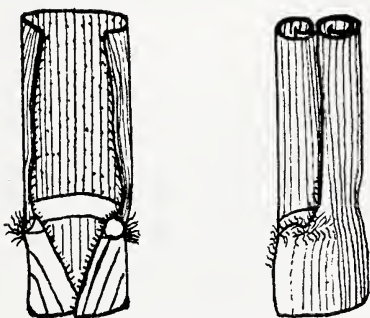
'Lodorm' green needlegrass (*Nassella viridula*) was released in 1969 by the Montana, North Dakota, and South Dakota Agricultural Experiment Stations, along with the Plant Science Research Division of the Agricultural Research Service (ARS), Mandan, North Dakota. It is recommended for use in pasture and range seedings in the Northern Great Plains.

This cool-season midgrass is an important native species in the Northern Great Plains. Lodorm originates from a bulk collection made in a native stand north of Bismarck, North Dakota, in 1935. It was selected for low seed dormancy after harvest.



## Description

Green needlegrass is a cool-season ( $C_3$ ) perennial bunchgrass native to the Central and Northern Great Plains region. Green needlegrass grows to a height of 18-36 inches. The seed head is a compacted panicle. The awns are curved, sharply bent in the middle, and about one inch long. The leaves are often rolled, thread-like, 4-12 inches long, glabrous, with prominent veins above. The ligule is a ring of hairs, and the sheath is hairy at the margins.



*Ligule and Sheath*

Clarke, S.E., Campbell, J. A., and Shevkenek, W. 1950. *The Identification of Certain Native and Naturalized Grasses by Their Vegetative Characters*. Canada Department of Agriculture Publication No. 762.

## Adaptation

This species has moderately deep, fibrous roots which in favorable situations may extend to a depth of 10 feet or more. On medium-textured soils, green needlegrass grows with western wheatgrass, needleandthread, and blue grama. On fine-textured soils, needleandthread drops out, and on even finer soils, blue grama decreases leaving green needlegrass and western wheatgrass as dominants. Green needlegrass naturally occurs on bottomlands, flat benches, and overflow areas along streams. The primary area of adaptation of Lodorm is the Northern Great Plains and Upper Midwest.

## Uses

Lodorm green needlegrass is well suited for use in mixtures for range seeding, critical area establishment, mined land revegetation, wildlife habitat, and other plantings where the establishment of native vegetation is the objective. Lodorm has rapid recovery growth. It starts growth relatively early and remains green until late in the season. This species is nutritious and palatable, but decreases under heavy grazing use. The awns are not troublesome to livestock as with some other needlegrasses. Green needlegrass is frequently included in seedings of mixed midgrasses, but due partly to its hard seed coat, it may be slow to germinate and become established.

## Establishment

High dormancy is a characteristic of this grass. Germinability improves for several years after harvest. Seedlings are slow in developing. Once established, they have good vigor. Green needlegrass has approximately 181,000 seeds/lb. A full seeding rate of 6 PLS lb/ac (25 pure live seeds/ft<sup>2</sup>) for western North Dakota is recommended. For eastern North Dakota, a seeding rate of 7.5 PLS lb/ac is recommended. This is equivalent to 30 pure live seeds/ft<sup>2</sup>.

Seed into a clean, weed-free seedbed. Firm the seedbed with a packer or harrow if necessary. The seedbed should be firm enough to allow the seed to be planted only ½ to ¾ inch deep. The seeding equipment should provide proper seed depth, uniform seeding rate, and good seed to soil contact. Apply no fertilizer the year of establishment unless a soil test indicates a severe deficiency of nitrogen and phosphorus.

## **Management**

Seed dormancy in this species is inversely related to maturity. Seed ripening progresses from top to bottom. Seed in the lower panicle branches is still immature when that in the upper branches has ripened and started to shatter. Differences of a few days in harvest can make large differences in seed dormancy.

Seed harvest must be timed carefully to avoid excesses in both shattering and immaturity. It is seldom possible to get more than 50 percent of the seeds.

Pure stands of green needlegrass in native grasslands are uncommon. Mixtures of Lodorm green needlegrass with other grasses and alfalfa are recommended for forage plantings and for pasture. In new plantings, reduce weed competition by mowing at a height that will not affect the young seedlings. Protect from grazing, until established.

## **Performance**

As a cool-season grass, green needlegrass growth begins in the spring and continues into the fall when moisture conditions are favorable. In a study conducted by the Plant Materials Center and North Dakota State University at Hettinger, North Dakota, the date of peak forage production of green needlegrass was in mid-August. In an earlier study at the same location, the five-year average for forage production of Lodorm was almost 700 lb/ac, on a fine sandy loam soil. In a similar study at Fort Pierre, South Dakota, the five-year average forage production was approximately 1100 lb/ac, on a clay soil. Crude protein is good during the early growing season. The study at Hettinger indicated a range from 19 percent (April 26), 14 percent (June 1), 7 percent (July 1) to 5 percent (August 24).



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## Seed Production

Seed yields from green needlegrass vary from about 125 lb/ac on dryland to 250 lb/ac for irrigated fields. Seed ripening is intermittent on each seed head and shattering begins as soon as the first seed is ripe. Seed ripens from late June to mid-July. If the seed is harvested with a grass seed stripper, more than one pass can be made through the field. Native stands of green needlegrass produce profitable seed harvest only in years of favorable precipitation. Once the seed is harvested, it needs to be processed to remove the awns.

## Seed Availability

Foundation seed of Lodorm is available for seed increase from the USDA, NRCS Plant Materials Center, 3308 University Drive, Bismarck, ND 58504. Certified seed is available from various commercial vendors. Contact your local USDA, NRCS field office or the Bismarck Plant Materials Center for a list of vendors.

### For more information, contact:

USDA-NRCS Plant Materials Center

3308 University Drive

Bismarck, ND 58504

Phone: (701) 250-4330

Fax: (701) 250-4334

<http://Plant-Materials.nrcs.usda.gov>



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